

## FHB Management Coordinated Project: Integrated Management Trials 2022-2024

The information in this handout was authored by PIs of the USWBSI Integrated Management Coordinated Project. For the list of authors see the full publication ([https://scabusa.org/pdfs\\_dbupload/Report-2023\\_USWBSI\\_Uniform-IM-Studies.pdf](https://scabusa.org/pdfs_dbupload/Report-2023_USWBSI_Uniform-IM-Studies.pdf)).

Fusarium Head Blight (FHB), also known as scab, is a damaging disease that affects wheat and barley crops around the world. It not only lowers the amount of grain farmers can harvest but can



also lead to the production of a harmful toxin called deoxynivalenol (DON). This toxin can be dangerous to both people and animals when contaminated grain is consumed. No single management strategy is fully effective for reducing Fusarium head blight (FHB) and deoxynivalenol (DON) contamination of grain in wheat. An integrated approach that includes agronomic practices, resistant cultivars, and chemical control is required. While the efficacy of Prosaro and Miravis® Ace, industry standards for FHB and DON management, has been well documented, it is unclear whether newly labeled products such as Prosaro Pro

and Sphaerex will be just as or more effective than the industry standards when used in combination with cultivar resistance. Reported here are results from over 58 trials, conducted

across 24 states, representing both spring and

winter wheat production regions. The

susceptible, nontreated check had the highest

mean IND (13.3%), whereas treatment

combinations involving the application of

Prosaro, Miravis Ace, Prosaro Pro, or

Sphaerex (IV) at anthesis to MR cultivars has

the lowest means (1.6, 1.1, 1.2, and 1.3%,

respectively) (**Fig. 1A**). Within each

resistance class, all fungicide treatments had

significantly lower mean index than the

nontreated check (**Fig. 1A**). Like index, the

lowest mean DON contamination was

observed when either Prosaro, Miravis Ace,

Prosaro Pro, or Sphaerex was applied at

anthesis to MR cultivars, with means ranging

between 0.7 to 0.8 ppm. The highest mean

level of the toxin was observed in the

untreated susceptible check with DON level of

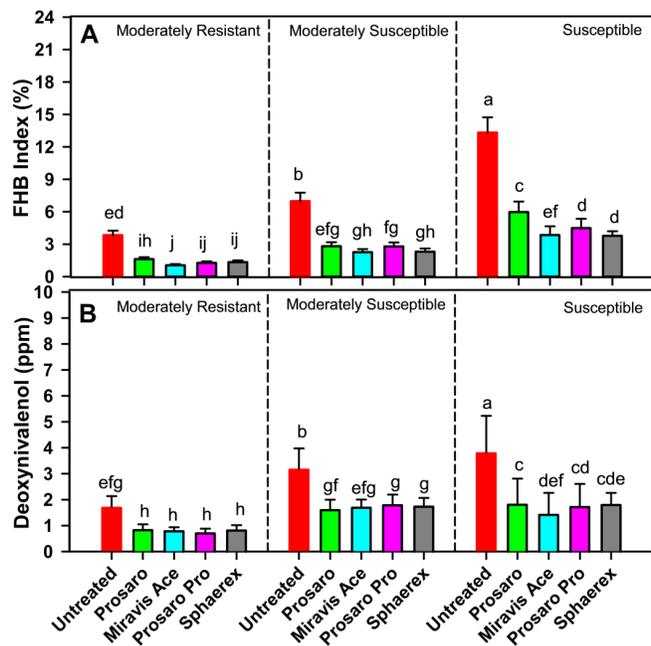
approximately 3.8 ppm (**Fig. 1B**). These findings

suggest that the new fungicide mixtures are highly

effective in managing FHB and DON,

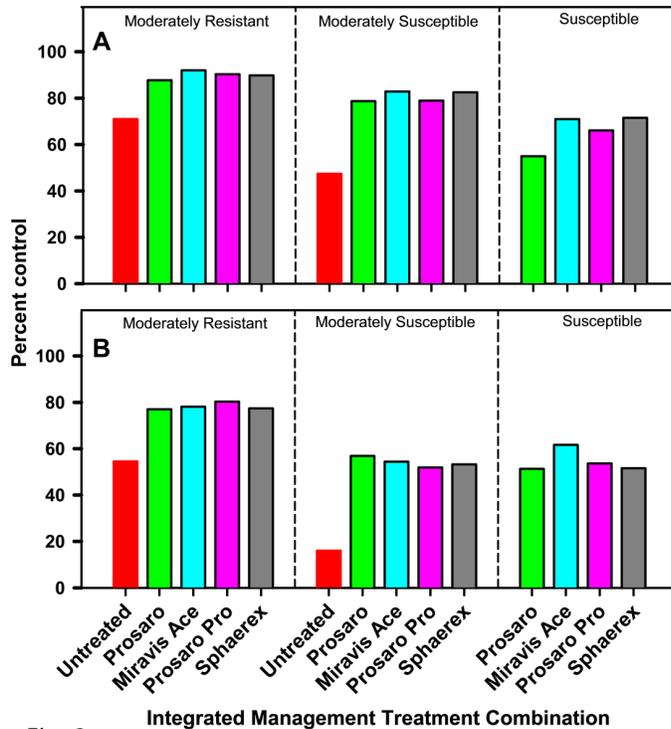
particularly when combined with genetic

resistance.



**Fig. 1.** Integrated Management Treatment Combination

Averaged across environments, using a combination of moderately resistant (MR) wheat cultivars and fungicide treatments provided the best control of Fusarium head blight (FHB) and DON toxin levels compared to other strategies (Fig 2A and 2B). For example, compared to untreated susceptible varieties (S CK), the combination of an MR variety and one of the tested fungicides



resulted in the highest disease and toxin control—reducing FHB severity by 87 to 92% and DON by 77 to 80%. Programs using moderately susceptible (MS) varieties with fungicides showed less control—reducing FHB by 78 to 82% and DON by 53 to 57%. The least control was observed in programs using susceptible (S) varieties with fungicides, where FHB was reduced by 55 to 71% and DON by 51 to 62% (Fig. 2. A and B). These findings highlight the importance of using MR varieties along with effective fungicides to achieve the best protection against FHB and DON, providing farmers with practical strategies to manage these challenges.

Fig. 2.